

AIR QUALITY CONTROL IN CALIFORNIA

EXECUTIVE SUMMARY

Final report of a study conducted under
Senate Concurrent Resolution No. 32 (1979)

for the
OFFICE OF THE LEGISLATIVE ANALYST
Joint Legislative Budget Committee
of the California Legislature

By
William Simmons, Consultant
and
DEL GREEN ASSOCIATES, INC.
9666 Business Park Avenue
Suite 101
San Diego CA 92131

December 1980

TABLE OF CONTENTS

	<u>Page</u>
List of Tables	iii
<u>Executive Summary</u>	
Introduction	1
Ambient Air Quality Standards	2
Complaints	3
Analysis Of The Problems -- Issues In Nonvehicular Control	4
Analysis Of The Problems -- Structure And Leadership Issues	6
Duplication In The Nonvehicular Air Pollution Control Programs	9
Benefits And Costs Of Air Pollution Control	10
Recommended Changes In California Laws Controlling The Nonvehicular Program	10
Alternative Organizational Structure And Related Costs	17
The Federal And California New Motor Vehicle Emissions Control Programs	20

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Comparison Of Estimated Benefits And Costs Of Controlling Air Pollution From Stationary Sources In California, 1978 . . .	11
2	Recommended Basic Structure For Local Air Pollution Control By Air Basin	16
3	Recommended Interim Structure For Local Air Pollution Control By Air Basin	18

EXECUTIVE SUMMARY

INTRODUCTION

The control of air pollution in California is a joint effort of three levels of government -- federal, state, and local. The federal Environmental Protection Agency (EPA) administers the federal Clean Air Act under which state and local air pollution control agencies prepare plans to achieve and maintain the federal ambient air quality standards. These plans must be approved by EPA; thereafter, EPA's role is to assure that the plans are implemented. At the state level, the Air Resources Board (ARB) regulates emissions from new motor vehicles sold in California and oversees the activities of the local air pollution control districts and air quality management districts. (For convenience, the two kinds of districts are referred to collectively in this summary as the "air pollution control districts" or simply the "districts.") The districts have the primary responsibility for control of emissions from nonvehicular (stationary) sources of air pollution.

This study analyzes and evaluates the interrelationships of the three levels of government in terms of their management of air pollution control. It was authorized and funded by Senate Concurrent Resolution No. 32 (SCR 32), which was filed with the Secretary of State on September 18, 1979. The Resolution requires identification of overlap, duplication, and conflict in the three tier system. Recommendations must be made for their elimination. The report on the study must also contain recommendations for improvements in the management and enforcement of the air pollution control programs in California. Both the vehicular and nonvehicular programs were included in the study; however, the Legislative Analyst excluded vehicle inspection and maintenance

since this was the subject of a recent study conducted under the authorization of Senate Concurrent Resolution No. 16.

The report was prepared in three volumes: the text, a set of appendices, and this Executive Summary. This Summary is not a synopsis of each chapter in the report. Rather it covers only the most important conclusions and recommendations in Chapters 3, 5, 6, 8, 9, and 11 of the report.

AMBIENT AIR QUALITY STANDARDS

Both the federal Environmental Protection Agency and the California Air Resources Board set ambient air quality standards for a variety of pollutants. This study compared the standards and determined that, with the exception of carbon monoxide, the state standards are more stringent than the federal standards. However, because of the difficulties in achieving the federal standards, the more stringent state standards have not yet had much impact on the control programs.

When setting ambient air standards, both the EPA and the ARB consider only the adverse effects of air pollution. Adverse effects on human health are considered most important. Impacts on vegetation, materials, and visibility are also considered, but they are of secondary importance. In setting the standards, the EPA and the ARB do not consider any economic or social consequences that might occur in implementing programs to achieve the standards. Setting ambient air standards without regard to the consequences associated with their achievement has been a fundamental policy in air pollution control. Should this policy be altered, significant changes in the control programs might result.

Ambient air quality standards are discussed in Chapter 3 of the report.

COMPLAINTS

Each level of government had complaints about other levels. Insight into the nature of the problems in the three tier system of government can be gained from a reading of these complaints. Some of the complaints found in this study are listed below; many more can be found in Chapter 5. While reading them, it must be kept in mind that not all districts complain about the ARB. Likewise, the ARB is satisfied with the performance of several districts. The following complaints are limited to the nonvehicular program.

District Complaints about the ARB

- . From 1975 through mid-1979, the ARB developed a domineering and adversary position toward the districts. The ARB did not recognize that its main purpose is to coordinate and support district operations, not to preempt those operations.
- . The ARB meddles unnecessarily in district rule making, permit processing, and enforcement activities often without authority.
- . The ARB requires too many reports, which are seldom used.
- . The ARB has used the state subvention and even the EPA grant program to force the districts to fulfill ARB responsibilities and to achieve ARB goals.
- . There is very little interface between the five ARB members and the boards of the districts. The ARB often ignores or does not respond to public hearing testimony or input by the districts.
- . The ARB sends representatives to meetings without authority to speak or represent the agency, or with authority to make statements, but not to answer questions beyond a limited scope.

ARB Complaints about the Districts

- . The districts are too lenient in obtaining compliance and taking enforcement action.
- . Some counties seek new industries without sufficient regard to the impact such industries would have on air quality.

- . Many districts are too small or lack the technical capability to deal with complex air pollution control issues.
- . The districts are inclined to complain about imagined problems, rather than to deal directly with the issues.
- . The districts do not obtain adequate data and use shortcuts in processing permit applications. Many new source review applications are approved at just below cutoffs. Too few permits require emissions offsets and best available control technology.
- . There are too many districts for the ARB to deal with effectively.

District and ARB Complaints about the Environmental Protection Agency

- . The EPA keeps placing mandates on the state and districts without the funding necessary to implement them.
- . The EPA prefers to deal with the ARB and not directly with the districts. This results in filtered information, misunderstandings, and wasted time and effort.
- . The EPA requires too much reporting, and there is no feedback on the reports submitted.
- . The EPA will not attend nor participate in crucial meetings.
- . The EPA has been extremely slow in furnishing guidance to the ARB and the districts. It sets a deadline, then fails to provide the needed guidance -- but still expects the deadline to be met.

ANALYSIS OF THE PROBLEMS -- ISSUES IN NONVEHICULAR CONTROL

Chapter 5 of the report presents analyses of various parts of the non-vehicular emissions control programs at the three levels of government. The subjects covered are emissions regulations, permits, emissions inventory, enforcement, source testing, agricultural burning, ambient air monitoring, and the planning process with special emphasis on planning at Lake Tahoe. Also included are the rule adoption process, and EPA and ARB reporting requirements. Conclusions are drawn and recommendations made on all these subjects, the most

significant of which are summarized here:

- . Because of the overriding role of the federal and state agencies, the districts are forced to adopt rules and regulations which many would not otherwise adopt.
- . The ARB has failed to work cooperatively with the districts in the past, but the ARB now has a special rules development committee the membership of which is largely from the districts. The use of the committee has done much to reduce conflict between the ARB and the districts.
- . The ARB has interjected itself in the districts' processing of applications for permits. The ARB's role in permit processing is not spelled out in the law, but should be. The ARB causes delay and creates animosity with the districts and the permit applicants by its involvement. Statutory changes are recommended which deal with this problem.
- . While the ARB must maintain a statewide emissions inventory, it must do so with the cooperation and assistance of the districts. ARB's attempts to build a usable system have been hampered, in part due to its failure to consider the needs and capabilities of the districts. The inventory should be as much use to the districts as it is to the ARB. The ARB has recently established a committee with district members to improve the emissions inventory. This is a good beginning, but the ARB must make a substantial commitment to the committee and to the districts if the problems in emissions inventory are to be alleviated.
- . The ARB has been very aggressive in enforcing district rules and regulations in some portions of the state. The ARB selects industries of interest and commences its own enforcement activities rather than relying on its overview role to obtain desired action by the affected districts. The districts resent this style of enforcement and believe the ARB is not sympathetic or sensitive to local conditions and problems. The ARB must make every effort to work with the districts in enforcement. The ARB should only resort to direct action when the districts fail to respond to its attempts to cooperate.
- . Only a few of the districts and the ARB have source testing capability. It is impossible for them together to source test even the major sources within the state with the resources available. Yet the ARB does not coordinate its source testing with the districts and does not fully utilize all the source testing capabilities within the ARB.
- . The ARB has worked with the districts in revising the agricultural burning guidelines. However, the districts believe still more needs to be done. The districts are most anxious

to obtain more flexibility in the regulations so that burning can be allowed when local conditions are favorable. The ARB should continue to work with the districts to improve the agricultural burning program.

- . Ambient air monitoring is performed by the ARB and the districts. In some air basins the districts do all the monitoring. In many rural areas the ARB does the monitoring. In much of the state both the districts and the ARB are performing monitoring. This patchwork is the result of historical development. The total system exceeds EPA requirements. There may be superfluous monitoring in the South Coast Air Basin. Air monitoring in that basin should be reviewed by the special ARB-district committee on air monitoring to see if better use can be made of the monitoring equipment.
- . Planning for the achievement and maintenance of air quality standards is dictated by federal requirements. It is done at the local level, but the plans must be approved by the ARB and transmitted to EPA. The manner in which the ARB conducted its reviews of the 1979 plans produced animosity in the districts and other local agencies toward the ARB. The EPA and, to some extent, the ARB were late in furnishing guidance to local planning agencies. Top ARB management should be involved more and should be better informed in all stages of plan development. The ARB should reconsider its self-designation as the lead planning agency for Lake Tahoe now that the Tahoe Regional Planning Agency has been revitalized under the new bistate compact.
- . Both the ARB and the EPA should undertake an in-depth review of their reporting requirements to (1) assure that all reports are used and not just shelved; (2) determine if those reports which are essential can be simplified; and (3) determine what kind of feedback to the districts would be useful to them.

ANALYSIS OF THE PROBLEMS -- STRUCTURE AND LEADERSHIP ISSUES

Many causes, both structural and nonstructural, were found for the conflicts between the local districts and the Air Resources Board. The structural causes are embodied in the relationships established by law. The nonstructural causes are associated with the personalities and behavior of policymakers, administrators, and senior staff members in both levels of government.

Structural Causes of Conflict

The following items depict the most important structural differences:

- Superior vs. Subordinate

The Health and Safety Code gives the ARB a position of superiority. It can override district decisions and actions, and this creates resentments.

- Appointed Technicians vs. Elected Generalists

The members of the Air Resources Board are appointed and must have specified technical backgrounds. They have a single purpose, to control air pollution. The members of the district boards are elected generalists, with many problems to consider other than air pollution.

- Separation of Vehicular and Nonvehicular Programs

The ARB has exclusive responsibility for the emissions limits set for new vehicles. The districts have primary responsibility for stationary sources. The ARB, because of its overview authority, can influence the policies and regulations of the districts, but the districts have no voice in the ARB's vehicle program.

We see no practical way to remove entirely the conflicts that arise from these differences in structure. In fact, some conflict is probably desirable. We believe that a state agency must exist to coordinate activities and take action when districts fail to meet their responsibilities. Most local officials interviewed agreed with this statement. Disagreements were on how much authority the ARB should have. From an organizational point of view it would be best to have the generalists in the position of superiority, but this cannot be done, given the nature of the state government. Our recommended inclusion of three district officials who are elected officials (with the possible exception of one nonelected member of the South Coast District Board) will mitigate this difference somewhat. This change will also bring the districts into a position to influence the vehicle program and to appreciate its complexities.

Nonstructural Causes of Conflict

Nonstructural conflicts are defined as those which occur regardless of the structural relationships of organizations. They are generated by the behavior of individuals, not by the requirements of the law. The causes we have identified are listed below:

- . The ARB, under Governor Brown, has taken a very aggressive stance regarding:
 - Enactment of new regulations which force development and utilization of new technology.
 - Strict enforcement of existing regulations.
 - The ARB's use of its statutory authority.
- . The ARB has exhibited disregard and distrust of many local districts.
- . Many districts have exhibited disregard and especially distrust of the ARB.

There are two basic approaches (with an array of intermediate variations between them) that the ARB can take to carry out its statutory duties. It can "hit the districts over the head" (as one interviewee put it) or it can seek its goals through respect, leadership, moral persuasion, compromise, and a sense of partnership. The ARB has used both approaches, but the "big stick" approach was used too often in the past. This approach may have gotten the public's attention and may have elevated the public's awareness of the air pollution problems and what is and what is not being done about them, but it has been detrimental to the establishment of a working relationship with the districts.

The public and the Legislature should rightfully expect agencies at two levels of government, presumably with the same common goal -- viz, clean air -- to form a relationship that reduces and controls the structural causes of conflict. The ARB and the districts should have found a way to work together

to accomplish the goal. Instead, they have been at each others throats, often in public forum. Disagreements have taken precedence over common interest in clean air.

The solution to the nonstructural conflicts must come from a change in attitudes. Differences in approach and differences in philosophies can be discussed and negotiated. Compromises can be made. The situation need not go on unchecked, but proper leadership must be exercised if improvements are to be made.

Our report makes a number of recommendations for legislative changes which will establish better legislative policy and restrict the opportunity for the Air Resources Board to act in the manner that it has in the past. But laws will not change people. People can work together in any structure. Or they can render any structure ineffective. The basic changes must come from the people involved.

Communication can do much to overcome fears, anxieties, and distrust, and can develop an understanding of others' views and the constraints within which they must work. With better communication comes better understanding. With understanding comes resolution. Many of the recommendations we make are meant to force communication, and then, hopefully, resolution.

DUPLICATION IN THE NONVEHICULAR AIR POLLUTION CONTROL PROGRAMS

Chapter 8 of the report identifies areas of duplication, mostly between the ARB and the districts. Duplication occurs in the enforcement, emissions inventory, permit processing, ambient monitoring, and source testing programs. However, in our opinion the duplication is not significant compared to the conflicts just discussed.

Overlap of activities was not treated separately from conflicts and duplication. The term could not be defined in the context of the federal, state, and local air pollution control programs. However, the discussions about conflicts and duplication adequately cover the subject matter and explain the problems that exist.

The SCR 32 study team found it impossible to assess the costs, in terms of dollars, of the wasted resources associated with the conflicts and duplication. Undoubtedly, there is waste of resources but we believe our recommendations, if implemented, will reduce the waste significantly.

BENEFITS AND COSTS OF AIR POLLUTION CONTROL

Chapter 8 also includes a brief review of the literature on the benefits and costs of controlling air pollution from stationary sources. Using selected publications, we estimated the benefits and costs in California for 1978. Among the benefits were decreased mortality and morbidity, and increased property values. The costs of control to industrial and other stationary sources of air pollution and the costs of the three levels of regulatory agencies operating in California were subtracted from the dollar value of the benefits. The data are summarized in Table 1. They show a net benefit from air pollution control of \$861 million for the year.

RECOMMENDED CHANGES IN CALIFORNIA LAWS CONTROLLING THE NONVEHICULAR PROGRAM

The Legislature should establish the policy that the ARB and the districts are partners in the effort to bring about clean air. We recommend that the following language be added to the "Findings, Declarations, and Intent" sections of the California air pollution control laws:

Table 1

COMPARISON OF ESTIMATED BENEFITS AND COSTS
OF CONTROLLING AIR POLLUTION FROM
STATIONARY SOURCES IN CALIFORNIA, 1978
(Millions of Dollars)

Category	Total Amount
<u>Benefits</u> , primarily from decreased mortality and morbidity and increased property values	\$ 2,080
<u>Costs</u> to industrial sources, utilities, and sources operated by public agencies	(1,170)
<u>Costs</u> of regulatory agencies	(49)
NET BENEFIT	\$ 861

The problems of air pollution are not going to be solved by the Air Resources Board alone, nor by the districts alone. Only through a cooperative and mutual effort on the part of both can air quality be attained and maintained. The Air Resources Board and the districts are partners in this effort, and shall work together cooperatively to the greatest extent possible to achieve the attainment and maintenance of air quality. The Legislature requires and expects this cooperative effort, notwithstanding the dominant role given the Board in this Division.

The following recommendations are made either to bring about closer working relationships between the ARB and the districts or to restrict the ARB's ability to act arbitrarily without proper procedures when dealing with the affairs of the local districts. A brief explanation of the reason for each recommendation is included. The recommendations and justifications are given in more detail in Chapter 9 of the report.

Changes in the Air Resources Board

The membership of the Air Resources Board should be increased from five to seven members. Four would be appointed by the Governor. Two of the four would have to have education or experience similar to what is required now. A third member would have to be a physician or authority on health effects of air pollution. The fourth would be a "public" member. The remaining three members would be from local districts. One would be a board member of the South Coast Air Quality Management District; one would be a board member of the Bay Area Air Quality Management District; and one would be a board member from one of the remaining districts. The former would be selected by their own boards, the latter would be selected by the County Supervisors Association. These members would be prohibited from voting on matters of direct interest to their district or air basin.

Several needs would be met by this recommendation. First, the addition of the physician or authority on health effects is essential for the Board to consider adequately the complexity of health related issues. Second, the public member concept works well on other specialty boards. A representative of the public would broaden the views of the board. Third, and perhaps most important, the districts would have a voice in the overall state program.

Needed lines of communication would be established with at least three districts, including the two largest. If the staffs of the agencies see that their policy makers are working together to solve problems, the staff would also improve their working relationships. A number of other alternatives were considered for forcing the ARB and the districts to communicate and work together better. The recommended approach was chosen because it emphasizes improving the relationships between top levels of the two tiers of government. It would also give the districts input and insight into the state's vehicular emissions control program, which they have been denied from the beginning.

- . The Chairperson should serve full-time, but would be prohibited from becoming involved in staff operations.

This would allow the Chairperson to spend time and hold hearings in the districts, to work with the Legislature, and to travel to other parts of the country on vehicular program matters.

- . No plan required by the federal government should be amended by the ARB without the concurrence of the lead agency or agencies which submitted it. Hearings should have to be held in the districts affected. These requirements should not be applied to minor amendments, as determined by the ARB and the districts.

The purpose of this recommendation is to limit the role of the ARB in dictating to the districts and other affected local agencies the contents of the federal implementation plans. These plans are developed by local agencies and adopted by locally elected officials. Local government bears the effects of federal sanctions should the plans not be approved by the EPA. Still, the ARB must have some input if the plans are deficient. The ARB and local authorities should resolve their differences among themselves before the plans are forwarded to the EPA. This would make both the ARB and local districts committed to the plans once they are approved by the EPA. This procedure is

already in effect for the plan developed in the Bay Area.

- The ARB should follow specified procedures and make certain findings before it can impose rules and regulations on the districts. (The findings and procedures are set forth in detail in Chapter 9.) The districts would be given notice and opportunity to act before the ARB could adopt a rule. There would have to be a hearing in the districts affected.

The purpose of these recommendations is to clearly define the limits of ARB's rule-making authority. The districts would be given greater opportunity to impress the ARB with their views and needs.

- The role of the ARB in permit evaluations performed by the districts should be restricted and clarified. Our recommendation would require specific findings to be made before the ARB could become involved in the consideration of a permit application. However, the ARB should have discretionary authority to act on one permit per year in each district (two per year in the South Coast and Bay Area Districts) without giving its reasons. When the ARB assumes authority over a permit application, the district should be excluded from the final determination.

The law is silent about the role of the ARB concerning involvement in pending applications. Our recommendations would prohibit any ARB involvement except in the specified circumstances. They would also prevent a permit applicant from being subjected to the determination of two differing agencies. Either the district would issue the permit without ARB involvement, or, in the cases specified, the ARB would issue the permit without district involvement.

- The executive officer of the ARB should not be authorized to adopt a district rule or take over general permit or enforcement authority of a district. These should be nondelegable functions that must be performed by the Board itself.

These important functions should only be performed at the policy level.

- The ARB should be given authority to regulate emissions from geothermal fields.

The reason for this recommendation is that the state's geothermal fields are in remote and scattered areas of the state where the air pollution control

districts do not have the technical expertise and general resources to deal effectively with the major oil companies and electric utilities which dominate the geothermal industry. There is no need for the specialized expertise in four or five different agencies. It should all be concentrated in one agency.

Changes in the Districts

Air pollution control is a very technical and complex program. Many disciplines are necessary for a district to be able to perform all of the necessary functions. It is impossible to find any one person who has all of the expertise required. Yet there are seven districts with less than one full-time equivalent employee. We believe that a district in a rural area must have at least five full-time equivalent employees in order to adequately conduct day-to-day operations. Yet, there are 22 districts which have fewer than this number. Even with five employees, some specialized functions, such as source testing and the evaluation of applications for large new sources, probably cannot be adequately performed without expert assistance and consultation from the ARB or other agency.

Requiring a district in each county may have been appropriate in 1970, but it cannot be justified in today's complex regulatory scheme of air pollution control. With these complexities in mind, we recommend the following basic structure for district organization in California;

Basic Recommendation

County districts and basin-wide control councils should be eliminated except where a county encompasses an entire air basin. Basin-wide districts would be substituted except in vast and sparsely populated air basins where the ARB would be given direct authority. Coordinating councils would be abolished.

Table 2 shows how this recommendation would apply in each air basin.

Table 2

RECOMMENDED BASIC STRUCTURE FOR LOCAL AIR POLLUTION CONTROL BY AIR BASIN

No Change	Basin-Wide Districts ^a	State Operated Program ^a
South Coast	Sacramento Valley	North Coast (including Lake County) ^c
San Francisco Bay Area	San Joaquin Valley	Mountain Counties ^c
San Diego	Central Coast ^b	Northeast Plateau
		Great Basin Valleys
		Southeast Desert

^aBasin-wide air pollution control councils would be abolished.

^bThe present Monterey Bay Unified District and the districts in San Luis Obispo, Santa Barbara, and Ventura Counties would be combined.

^cThe districts in each of these basins would have the option of becoming a basin-wide district and, thus, retain local control.

This recommendation may not be implemented in the near future because of opposition from the districts. Accordingly, we offer the following recommendation for an interim structure, which might even be supported by some districts:

Interim Recommendation

All districts which now encompass an entire air basin would remain unchanged. In the basins with a large number of counties, the basin-wide air pollution control councils would be strengthened by giving them exclusive rule-making authority for large new sources, and authority to adopt other rules for the basin if the council chooses. The councils would be given some state subvention to employ a basin engineer. This person would help small counties with permit processing, act as coordinator for the districts and liaison with the ARB, and serve as executive secretary to the council. Other basins would be given a choice of unifying, abandoning the air pollution control program to the state, or maintaining separate programs as they do now. In the latter event, the ARB would be given authority by statute to issue permits to regulate major new sources.

Table 3 sets forth this recommendation in more detail. The use of a basin engineer has already been instituted successfully by the Mountain Counties Control Council.

ALTERNATIVE ORGANIZATIONAL STRUCTURES AND RELATED COSTS

In addition to the basic and interim structures discussed above, we evaluated other alternatives. These were:

Water Resources Control Board Approach

Under this alternative, there would be regional (basin-wide) air pollution control districts whose boards would be appointed by the Governor. They would also be funded directly by the state. The ARB would have authority to redetermine decisions of the regional boards.

Centralize Discretionary Functions Under the ARB

Here the ARB would have statewide rule making authority, perform planning, and oversee basin-wide districts. These districts would issue permits, conduct surveillance and enforcement, perform ambient air monitoring, and compile emissions inventories.

Table 3

RECOMMENDED INTERIM STRUCTURE FOR LOCAL AIR POLLUTION CONTROL BY AIR BASIN

No Change	Control Council Strengthened ^a	Option to Unify, Abandon, or Share ^b with ARB
South Coast	Sacramento Valley	North Coast (including Lake County)
San Francisco Bay Area	San Joaquin Valley	
San Diego	Mountain Counties	South Central Coast
North Central Coast		Northeast Plateau
Great Basin Valleys		Southeast Desert ^c

^aThe basin-wide air pollution control councils would have rule-making authority for the basin; they would have to adopt NSR and PSD regulations, and could adopt other basin-wide rules; and they would receive subvention money sufficient to support a basin engineer and secretary. Counties would remain separate and conduct all enforcement.

^bIf the districts did not unify, they would continue as separate county districts, but the ARB would assume PSD and NSR responsibilities.

^cSince all of the counties in the Southeast Desert Air Basin, except Imperial, are in two air basins, the counties in the basin would be given a fourth option: adopt essentially the same program that is conducted in the remainder of the county (for Kern, the San Joaquin Valley program; for Los Angeles, Riverside, and San Bernardino, the South Coast District program). Modifications could be made as necessary to reflect differences between the populated portions of the counties and the desert areas. Imperial would be allowed to retain a separate county district, subject to certain restrictions (see text, Chapter 9).

. ARB Operation of the California Program

This alternative would abolish the districts and give the ARB the responsibility of performing all program activities.

. EPA Assumption of Statewide Responsibility

Here there would be no state nor local air pollution control programs.

. Retain the Existing Structure

The many small districts and the basin-wide pollution control councils in multidistrict air basins would continue operating. The tendency toward conflicts, particularly between the districts and the ARB also would continue.

There are various advantages to the first three alternatives. The most significant advantages are that they would strengthen the basin-wide control concept and reduce or eliminate the potential for conflict between the ARB and the districts. The principal disadvantages are that they would reduce or eliminate local control and unnecessarily strengthen the role of the state. It is doubtful that any of the first three alternatives would receive much support in the State Legislature at this time.

We know of no one who has seriously considered abandoning the California air pollution control program to the federal government. This alternative was mentioned merely to show that the possibility exists. As to continuing the present structure, we believe it is wrong to perpetuate the many small districts and the weak control councils.

Beside discussing these alternatives in detail in Chapter 8, we present our estimates of the annual operating costs for the basic and interim structure recommendations and of the state operated program alternative. The annual operating cost of the existing structure in FY 1979-80 was nearly \$57 million. The interim structure would be essentially the same cost. However, our recommended basic structure would cost an additional \$1.8 million and the

state operated program would cost about \$2 million more than the interim structure. The main reasons for the higher costs are the increase in the number of technical people needed to work in the nonmetropolitan air basins and an increase in salary levels in the rural air basins. Under the basic structure, there would be nonrecurring start-up costs of about \$3.5 million. (Our estimates were based on 1979-1980 dollars.)

THE FEDERAL AND CALIFORNIA NEW MOTOR VEHICLE EMISSIONS CONTROL PROGRAMS

California has pioneered the control of emissions from new vehicles. Its efforts began in Los Angeles in the 1950's. Today, more than 20 years later, California is still setting milestones for other control agencies around the world. This leadership has not been without cost. The new cars, trucks, and motorcycles sold in California have been more expensive to buy, have had lower fuel economy, and have had poorer drivability and other performance characteristics than vehicles sold in the remaining 49 states. At times these differences have been significant, at other times they have not been noticeable. In fact, some vehicles sold in California have had higher fuel economy and better performance.

Chapter 10 of the SCR 32 report explores the differences in the present California and federal new vehicle emissions control programs and discusses the costs and benefits to California of its separate program. Chapter 11 discusses future alternative courses of action that might be taken in California and concludes with our recommended course of action.

Comparison of the Present Federal and California New Vehicle Program

Generally speaking, California's exhaust and evaporative emissions standards have been more stringent than the comparable federal standards, which are appli-

cable in the remaining 49 states. Because California has much less of a problem with carbon monoxide (CO) than with photochemical smog, the California standards for CO recently have tended to be less stringent than the federal standards for that pollutant. Photochemical smog is formed in the atmosphere in part from the hydrocarbon (HC) and oxides of nitrogen (NO_x) emissions from vehicles. The California standards for CO, HC, and NO_x, when considered together, must be at least as protective of human health as the federal standards in order that the state can obtain a waiver of federal preemption that prevents the other 49 states from having separate programs.

There are other differences in the federal and California vehicle emissions control programs. Some of these differences may be more significant than the differences in the standards. The ARB certification of prototype vehicles generally follows federal procedures, but the ARB allows less scheduled maintenance than does the EPA. Both the ARB and the EPA randomly select unsold vehicles for compliance testing by the full certification test procedure, but their procedures are substantially different. If a predetermined number of vehicles (different for each agency) fail these tests, the manufacturer must take corrective action. The ARB also imposes assembly-line testing, but the EPA does not. There are two ARB assembly-line requirements: (1) all passenger cars and light and medium duty trucks manufactured for California must be checked with an idle emissions test, and (2) 2% of all vehicles manufactured for sale in California must be tested by the manufacturer again using the federal certification test procedure. The ARB also conducts inspection and surveillance of vehicle preparation and maintenance practices at dealerships.

Both federal and California laws require that vehicle emissions control systems be warranted for at least 50,000 miles or five years, whichever occurs

first. In some instances, the ARB has extended the warranty to 10 years or 100,000 miles. The execution and enforcement of the warranty requirements present many problems to the control agencies, the vehicle manufacturers, and the after-market parts industry (i.e., the manufacturers and distributors of replacement parts). EPA is more inclined to tie the warranty requirements to periodic vehicle inspection and maintenance than is the ARB. ARB's warranty provisions are generally more stringent and cover more parts than the federal regulations. The after-market parts industry is particularly troubled by the California warranty requirements. It fears that the requirements force vehicle owners to return to dealers more often than they would normally, thereby reducing the after-market parts business for parts stores, service stations, and repair shops.

Both the EPA and the ARB conduct tests of vehicles that have been in use a number of years. The purpose of such testing is to determine how well the emissions control systems perform in actual use. Such testing may also serve as the basis for requiring manufacturers to recall models with defective control systems. Both agencies also have motor vehicle related research and development activities.

Benefits and Costs of the California Vehicle Emissions Control Program

California needs the most stringent emissions standards reasonably available if it is to achieve the ambient air quality standards for oxidant (ozone) in the South Coast Air Basin. Stringent emissions standards are also needed for the other metropolitan areas in the state. The best measure available of the benefits of the California program is the comparison of emissions from vehicles in use. Vehicles manufactured for sale in California should be achieving greater reductions than vehicles manufactured for sale in the re-

maining 49 states. EPA and ARB studies have shown this to be the case. This report discusses ARB and EPA studies which have projected the benefit of the California emissions standards to the year 1987. An ARB study shows that its program will achieve a 15% greater reduction in hydrocarbon emissions, an 8% greater reduction in CO emissions, and a 35% greater reduction in NO_x emissions than will the federal program. The EPA data show less benefit from the California program, viz., 10% less emissions for HC, 5% less emissions for CO, and 20% less emissions for NO_x. One important reason for this difference is that the EPA assumed that California would have an inspection/maintenance program, while the ARB did not include this assumption in its calculations.

There are other benefits from the California program. Because California standards have generally led EPA standards by a few years, the EPA benefits from the early experience gained by the California program and the manufacturers' attempts to meet California standards. Likewise the manufacturers gain experience with new technology before they have to apply it nationwide. EPA acknowledges that it has benefited considerably from the California program. The manufacturers have made such acknowledgements in the past, but did not do so during the course of this study.

There have been added costs associated with California's separate vehicle emissions control program. First, there have been significant differences between the prices of California vehicles and the 49-state vehicles. In 1980, the price increase for cars sold in California compared to cars sold in the remaining 49 states ranged from \$20 (for Jaguar and Triumph models) to \$275 (for Ford models). Generally, the emissions control systems selected for use by the manufacturers have been those with the lowest

cost to develop and manufacture. While that may have kept new car prices from being even higher, it has tended to increase the vehicles' consumption of fuel and to adversely affect their performance. These effects also come about when new technology is introduced. The fuel penalty in California compared to 49-state vehicles varies from year to year, manufacturer to manufacturer, and model to model. Some EPA data show fuel penalties as high as 10%. Our estimate for model year 1977 is that California light-duty vehicles suffered a 12% penalty. Occasionally, some California vehicles have had better fuel economy. For the 1981 models, ARB claims that two-thirds of the models sold in California provide the same or better mileage than similar models sold in the remainder of the nation.

Other costs imposed on California motorists have included poorer driveability and lower performance characteristics. California motorists also have been denied the opportunity to buy certain models because some manufacturers do not offer all of their models for sale in California. The principal reasons that manufacturers limit model availability are that, in the time available, a standard cannot be met by a particular model or a standard cannot be met without an unacceptable sacrifice of vehicle performance. For low production models, the substantial expense to certify the control system is often a deciding factor.

Conclusions

The following conclusions are discussed in detail in Chapter 11 of the report. Only a few brief explanations can be given here.

- California is likely to continue to require its own new vehicle emissions control program if its citizens want the cleanest air possible from reasonably attainable levels of air pollution control. The need for maximum control is particularly great in the South Coast Air Basin.

- . It is a plausible assumption that advances in vehicle emissions control technology will permit California to go beyond its presently projected emissions standards. The current technology can probably be improved and there are possibilities of new technology in the future.
- . California has originated and successfully implemented a comprehensive and effective program for the control of emissions from new motor vehicles. This effort is beginning to assure that the emissions reductions achieved on prototype vehicles are carried through to the production vehicles over their useful lives.
- . To obtain maximum benefits from a new vehicle emissions control program, an inspection and maintenance program is likely to be required. Poor maintenance generally increases emissions, thereby wasting the benefits of the new vehicle emissions control program.
- . There are opportunities to simplify the California new vehicle emissions control program by shifting some features to the federal program. Two examples are increased reliance on EPA certification testing and EPA compliance testing.
- . The California motor vehicle emissions standards and various procedural requirements imposed on vehicle manufacturers by the ARB would benefit from simplification. The standards with multiple options and extensive reporting requirements are two areas that need attention.
- . The ARB, in its desire to gain maximum assurance that each vehicle meets prototype emissions levels, is probably overregulating the industry. This is especially true of assembly-line testing.
- . The present control strategy appears to lack balance. For example, controls on motorcycles beyond those imposed by the EPA may be too costly for the benefit gained.
- . The California public is not likely to gain clean air in nonattainment areas without continuing to bear costs and burdens beyond those borne by motorists in the rest of the nation. These costs and burdens probably will continue to result in higher vehicle cost, lower fuel economy, poorer performance, and fewer models to choose from.

Alternative Courses of Action

The two obvious alternatives for the future of the California new vehicle emissions control program are to make no change or to eliminate the program entirely. There are four intermediate stages that should be considered. The

range of the six alternatives is set forth below:

1. ARB continues its comprehensive new vehicle program and adds periodic inspection and maintenance to its in-use vehicle program.
2. ARB discontinues mandatory assembly-line testing, but continues compliance testing.
3. ARB, in addition, discontinues all certification of new vehicles and its program of dealership surveillance.
4. ARB, in addition, discontinues its independent warranty and replacement parts program.
5. ARB, in addition, discontinues compliance testing. At this point, California's only involvement with new vehicles is to set emissions standards.
6. ARB eliminates separate standards, thereby terminating its new vehicle program. ARB continues its in-use vehicle programs. (EPA would be solely responsible for the control of emissions from new vehicles.)

Each of these alternatives is discussed in Chapter 11 of the report. The progression from no change to elimination of the separate new vehicle program might be taken in a different order, but we believe that the last alternative that should be considered is the elimination of the separate standards. Once separate standards are eliminated, it would be very difficult to have a separate program or to reintroduce stricter standards should that become necessary in the future.

Recommendations

In the judgment of the authors, the following are appropriate actions for California to take in its new vehicle emissions control program:

- . ARB should continue to have a new vehicle program for at least the next five years. The need for a program separate from that of the EPA and the objectives and scope of such a program should be reviewed periodically thereafter.
- . Simultaneously, the ARB should transfer as much as possible of its new vehicle program to the EPA without compromising

California's special needs and without giving up its option to act to meet these needs if the federal program does not.

- . The ARB should adopt a policy of deliberate striving for balance and simplicity in its approach to controlling motor vehicle emissions.
- . The California Legislature should appoint an advisory group composed of individuals experienced in the field of motor vehicle emissions control to provide oversight for the Legislature on the broad objectives, policies, and activities of the ARB.

We believe that California should, for at least the next few years, continue its separate new vehicle emissions control program. At the same time, it should seek every opportunity to balance, simplify, and integrate its program with that of EPA, provided that significant emissions reductions are not sacrificed. There is need for a continuing evaluation of the federal and state programs and of the improvements in control technology. This evaluation, in our opinion, should not be left entirely to the Air Resources Board. It should be conducted by an objective group of individuals who are familiar with control technology and the federal and state vehicle emissions control programs. The Congress uses the National Academy of Sciences for this kind of assistance. There is no similar body in California that can be called upon.

We recommend that the Legislature establish a commission to serve the Legislature and keep it abreast of new technology and to review the federal and state new vehicle emissions control programs and all proposed changes to these programs. The commission should be composed of six members who have recognized stature in the field of air pollution control, preferably with experience in motor vehicle emissions. We propose six year staggered terms and suggest that two members be appointed by each house of the Legislature and two by the Governor. The commission should be linked to a joint legislative committee to best establish interaction with the Legislature. It

also should have limited staff support and a modest budget for occasional independent fact gathering studies.

The commission should not be in competition with the ARB and should have no authority over it. It should not be responsible for devising and promulgating California's motor vehicle pollution control program, nor should it be a watchdog. Instead, the purpose of the commission should be to help foster a policy of taking maximum advantage of the extensive federal effort to control new vehicle emissions, while at the same time assuring that California's special needs are considered. Finally, the commission should monitor the degree of balance in ARB's emissions standards and control programs to assure that these efforts are pointed in directions that will bring maximum return without imposing unreasonable costs and burdens.